

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

- (A) NAME: MEDIGEN SA - c/o LENZ and STAHELIN
- (B) STREET: 25 Grand Rue
- (C) CITY: GENEVA
- (E) COUNTRY: SWITZERLAND
- (F) POSTAL CODE (ZIP): CH 1211

(ii) TITLE OF INVENTION: METHODS FOR DIAGNOSIS AND THERAPY OF
AUTOIMMUNE DISEASE, SUCH AS INSULIN DEPENDENT DIABETES
MELLITUS, INVOLVING RETROVIRAL SUPERANTIGENS

(iii) NUMBER OF SEQUENCES: 46

(iv) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(v) CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/EP

004210 00205450

(2) INFORMATION FOR SEQ ID NO: 1:

- ```
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 25 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA (synthetic)"

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION: 1..25
 (D) OTHER INFORMATION: /note= "page 11"
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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

TTTTTGAGTC CCCTTAGTAT TTATT

25

(2) INFORMATION FOR SEQ ID NO: 2:

- ```
(i) SEQUENCE CHARACTERISTICS:
      (A) LENGTH: 20 base pairs
      (B) TYPE: nucleic acid
      (C) STRANDEDNESS: single
      (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
      (A) DESCRIPTION: /desc = "Synthetic DNA"

(ix) FEATURE:
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

ATCCAACAAC CATGATGGAG

20

(2) INFORMATION FOR SEQ ID NO: 3:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "Synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..21
- (D) OTHER INFORMATION:/note= "page 26"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TCTCGTAAGG TGCAAATGAA G

21

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..21
- (D) OTHER INFORMATION:/note= "PAGE 26"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

GTAAAGGATC AAGTGCTGTG C

21

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

CTTTACAAAG CAGTATTGCT GC

22

00406460

(2) INFORMATION FOR SEQ ID NO: 6:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION: 1..23
 - (D) OTHER INFORMATION: /note= "RT 1a page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

YAAATGGMGW AYGTYAACAG ACT

23

(2) INFORMATION FOR SEQ ID NO: 7:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "Synthetic DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION: 1..23
 - (D) OTHER INFORMATION: /note= "RT 1b page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

YAAATGGMGW AYGTYAACTG ACT

23

(2) INFORMATION FOR SEQ ID NO: 8:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"

004273 00206450

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..28
- (D) OTHER INFORMATION:/note= "RT 2a-nested page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

CGTCTAGAGC CTCTCCGGCA TGATCCCG

28

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..28
- (D) OTHER INFORMATION:/note= "RT 2b-nested page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

CGTCTAGAGC CTCTCCGGCA TGATCCCA

28

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..21
- (D) OTHER INFORMATION:/note= "Common 5' anchor page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

TGC GCCAGCA ATGTATCCAT G

21

004270 004270 004270

(2) INFORMATION FOR SEQ ID NO: 11:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "SYNTHETIC DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION: 1..21
 - (D) OTHER INFORMATION: /note = "1K1,2-1 page 50"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

GGGTGGCAGT GCATCATAGG T

21

(2) INFORMATION FOR SEQ ID NO: 12:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION: 1..22
 - (D) OTHER INFORMATION: /note = "4K1,2-4 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

GGGAGAGGGT CAGCAGCAGA CA

22

(2) INFORMATION FOR SEQ ID NO: 13:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "SYNTHETIC DNA"

(D) OTHER INFORMATION: /note= "K1,2-10 page 51"

22

(D) TOPOLOGY: linear

(A) DESCRIPTION: /desc = "synthetic DNA"

(D) OTHER INFORMATION: /note= "K1,2-16 page 51"

19

(D) TOPOLOGY: linear

(A) DESCRIPTION: /desc = "synthetic DNA"

(D) OTHER INFORMATION:/note= "K1,2-17 page 51"

20

(2) INFORMATION FOR SEQ ID NO: 16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..19
- (D) OTHER INFORMATION: /note= "K1,2-22 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

GGTGTTCCTC CTGAGGGAG

19

(2) INFORMATION FOR SEQ ID NO: 17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..21
- (D) OTHER INFORMATION: /note= "K1,2-26 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

GAAGAATGGC CAACAGAAGC T

21

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

004503700 012440

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..20
- (D) OTHER INFORMATION:/note= "K1,2-27 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

GGGAAACAAG GAGTGTGAGT

20

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 39 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..39
- (D) OTHER INFORMATION:/note= "U3-R-poly(AS) common page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

CATGTATATG CGGCCGCTGC GCCAGCAATG TATCCATGG

39

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..21
- (D) OTHER INFORMATION:/note= "RT1 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

TATCTTTCGT TTCTGCAGCA C

21

004210-09235450

(2) INFORMATION FOR SEQ ID NO: 21:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION:1..22
 - (D) OTHER INFORMATION:/note= "RT2 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

TAACTGGTTG AAGAGCTCGA CC

22

(2) INFORMATION FOR SEQ ID NO: 22:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION:1..21
 - (D) OTHER INFORMATION:/note= "R-U5-1 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

ATACTAAGGG GACTCAGAGG C

21

(2) INFORMATION FOR SEQ ID NO: 23:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..27
- (D) OTHER INFORMATION:/note= "R-U5-2 page 51"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

CAGAGGCTGG TGGGATCCTC CATATGC

27

(2) INFORMATION FOR SEQ ID NO: 24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "SYNTHETIC DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..25
- (D) OTHER INFORMATION:/note= "page 52"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

TTTTTGAGTC CCCTTAGTAT TTATT

25

(2) INFORMATION FOR SEQ ID NO: 25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..22
- (D) OTHER INFORMATION:/note= "Page 52"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

AGGTATTGTC CAAGGTTTCT CC

22

004410"00406460

12/27

(2) INFORMATION FOR SEQ ID NO: 26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "SYNTHETIC DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..22
- (D) OTHER INFORMATION: /note= "page 52"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

CTTTACAAAG CAGTATTGCT GC

22

(2) INFORMATION FOR SEQ ID NO: 27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..21
- (D) OTHER INFORMATION: /note= "page 52"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

GTAAAGGATC AAGTGCTGTG C

21

(2) INFORMATION FOR SEQ ID NO: 28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

004379 00296460

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..29
- (D) OTHER INFORMATION:/note= "page 53"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

GACTAAGCTT AAGAACCCAT CAGAGATGC

29

(2) INFORMATION FOR SEQ ID NO: 29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "synthetic DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..31
- (D) OTHER INFORMATION:/note= "page 53"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

AGACTGGATC CGTTAAGTCG CTATCGACAG C

31

(2) INFORMATION FOR SEQ ID NO: 30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 208 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION:1..208
- (D) OTHER INFORMATION:/note= "FIGURE 7A"

004270 00406450

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

CATCTCCCTC AGGAGAAACA CCCACGAATG ATCAATAAAT ACTAAGGGGA CTCAGAGGCT	60
GGTGGGATCC TCCATATGCT GAACGTTGGT TCCCGGGGCC CCCTTATTTT TTTCTCTATA	120
CTTTGTCTCT GTGTCTTTTT CTTTCCCAAG TCTTCTTCAT TTGCACCTTA CGAGAAACAT	180
CTCCATCATG GTTGTGGAT GGGGGCAA	208

(2) INFORMATION FOR SEQ ID NO: 31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1060 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..1060
- (D) OTHER INFORMATION: /note= "FIGURE 7B"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

CTGCAGGTGT ACCCAACAGC TCCGAAGAGA CAGTGACATC GAGAACGGGC CATGATGACG	60
ATGGCGGTTT TGTCGAAAAG AAAAGGGGGA AATGTGGGGA AAAGCAAGAG AGATGAGATT	120
GTTACTGTGT CTGTATAGAA AGAAGTAGAC ATAGGAGACT CCATTTTGTT CTGTACTAAG	180
AAAAATTCTT CTGCCTTGAG ATGCTGTAA TCTATGACCT TACCCCAAC CCCGTGCTCT	240
CTGAAACATG TGCCGTGTCA AACTCAGGGT TAAATGGATT AAGGGTGGTG CAAGATGTGC	300
TTTGTTAAAC AGATGCTTGA AGGCAGCATG CTCATTAAGA GTCATCACCA CTCCCTAATC	360
TCAAGTACCC AGGGACACAA AACTGCGAA AGGCCGCAGG GACCTCTGCC TAGGAAAGCC	420
AGGTATTGTC CAAGGTTTCT CCCCATGTGA TAGTCTGAAA TATGGCCTCG TGGGAAGGGA	480
AAGACCTGAC CATCCCCAG ACCAACACCC GTAAAGGGTC TGTGCTGAGG AGGATTAGTA	540
TAAGAGGAAA GCATGCCTCT TGCAGTTGAG AGAAGAGGAA GACATCTGTC TCCTGCCCAT	600
CCCCTGGGCA ATGGAATGTC TCAGTATAAA ACCCGATTGA ACATTCCATC TACTGAGATA	660
GGGAAAAACT GCCTTAGGGC TGGAGGTGGG ACATGTGGGC AGCAATACTG CTTTGTAAG	720
CATTGAGATG TTTATGTGTA TGTATATCTA AAAGCACAGC ACTTGATCCT TTACCTTGTC	780
TATGATGCAA ACACCTTTGT TCACGTGTTT GTCTGCTGAC CCTCTCCCCA CTATTGTCTT	840
GTGACCCTGA CACATCTCCC TCAGGAGAAA CACCCACGAA TGATCAATAA ATACTAAGGG	900

GACTCAGAGG CTGGTGGGAT CCTCCATATG CTGAACGTTG GTTCCCGGGG CCCCCTTATT	960
TCTTTCTCTA TACTTTGTCT CTGTGTCTTT TTCTTTTCCA AGTCTTCTTC ATTTGCACCT	1020
TACGAGAAAC ATCTCCATCA TGGTTGTTGG ATGGGGGGCAA	1060

(2) INFORMATION FOR SEQ ID NO: 32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1754 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..1754
- (D) OTHER INFORMATION: /note= "FIGURE 7C"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

ATGGTAACAC CAGTCACATG GATGGATAAT CCTATAGAAG TATATGTTAA TGATAGTGTA	60
TGGGTACCTG GCCCCACAGA TGATCGCTGC CCTGCCAAAC CTGAGGAAGA AGGGATGATG	120
ATAAATATTT CCATTGGGTA TCATTATCCT CCTATTTGCC TAGGGAGAGC ACCAGGATGT	180
TTAATGCCTG CAGTCCAAAA TTGGTTGGTA GAAGTACCTA CTGTCAGTCC TAACAGTAGA	240
TTCAC TTATC ACATGGTAAG CGGGATGTCA CTCAGGCCAC GGGTAAATTA TTTACAAGAC	300
TTTTCTTATC AAAGATCATT AAAATTTAGA CCTAAAGGGA AAAC TTGCCC CAAGGAAATT	360
CCTAAAGGAT CAAAGAATAC AGAAGTTTTA GTTTGGGAAG AATGTGTGGC CAATAGTGTG	420
GTGATATTAC AAAACAATGA ATTCGGAAC ATTATAGATT AGGCACCTCG AGGTCAATTC	480
TACCACAATT GCTCAGGACA AACTCAGTCG TGTCCAAGTG CACAAGTGAG TCCAGCTGTC	540
GATAGCGACT TAACAGAAAG TCTAGACAAA CATAAGCATA AAAAATTACA GTCTTTCTAC	600
CTTTGGGAAT GGGAAGAAAA AGGAATCTCT ACCCCAAGAC CAAAATAAT AAGTCCTGTT	660
TCTGGTCCTG AACATCCAGA ATTGTGGAGG CTTACTGTGG CCTCACACCA CATTAGAATT	720
TGGTCTGGAA ATCAAAC TTT AGAAACAAGA TATCGTAAGC CATTTTATAC TATCGACCTA	780
AATTCCATTC TAACGGTTCC TTTACAAAGT TGCCTAAAGC CCCCTTATAT GCTAGTTGTA	840
GGAAATATAG TTATTAAACC AGCCTCCCAA ACTATAACCT GTGAAAATTG TAGATTGTTT	900
ACTTGCAATTG ATTCAAC TTT TAATTGGCAG CACCGTATTC TGCTGGTGAG AGCAAGAGAA	960
GGCATGTGGA TCCCTGTGTC CACGGACCGA CCGTGGGAGG CCTCGCCATC CATCCATATT	1020

TTGACTGAAA TATTAAGG CGTTTTAAAT AGATCCAAAA GATTCATTTT TACTTTAATT 1080
 GCAGTGATTA TGGGATTAAT TGCAGTCACA GCTACGGCTG CTGTGGCAGG GGTTCATTG 1140
 CACTCTTCTG TTCAGTCAGT AAACCTTTGTT AATTATTGGC AAAAGAATTC TACAAGATTG 1200
 TGGAAATTCAC AATCTAGTAT TGATCAAAAA TTGGCAAGTC AAATTAATGA TCTTAGACAA 1260
 ACTGTCATTT GGATGGGAGA CAGGCTTGAC TTAGAATCATC ATTTCCAGTT ACAGTGTGAC 1320
 TGGAAATACGT CAGATTTTTG TATTACACCC CAAATTTATA ATGAGTCTGA GCATCACTGG 1380
 GACATGGTTA GACGCCATCT ACAGGGAAGA GAAGATAATC TCACTTTAGA CATTTCCTAAA 1440
 TTAAAAGAAC AAATTTTCGA AGCATCAAAA GCCCATTTAA ATTTGGTGCC AGGAACTGAG 1500
 GCAATTGCAG GAGTTGCTGA TGGCCTCGCA AATCTTAACC CTGTCACTTG GATTAAGACC 1560
 ATCAGAAGTA CTATGATTAT AAATCTCATA TTAATCGTTG TGTGCCTGTT TTGTCTGTTG 1620
 TTAGTCTGCA GGTGTACCCC AACAGCTCCG AAAAAAACAG TGACATCGAG AACGGGCCAT 1680
 GAATGACAAA GCGGTTTTTT GTTCCAAAAA AAAAAGGGGG AAATTTTGGG GAAAACCTAAA 1740
 AAAATGAAAA TGTT 1754

(2) INFORMATION FOR SEQ ID NO: 33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 520 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..520
- (D) OTHER INFORMATION: /note= "FIGURE 7D"

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 59..517

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

ACATTTGAAG TTCTACAATG AACCCATCAG AGATGCAAAG AAAAGCGCCT CCACGGAG 58
 ATG GTA ACA CCA GTC ACA TGG ATG GAT AAT CCT ATA GAA GTA TAT GTT 106
 Met Val Thr Pro Val Thr Trp Met Asp Asn Pro Ile Glu Val Tyr Val
 1 5 10 15
 AAT GAT AGT GTA TGG GTA CCT GGC CCC ACA GAT GAT CGC TGC CCT GCC 154
 Asn Asp Ser Val Trp Val Pro Gly Pro Thr Asp Asp Arg Cys Pro Ala
 20 25 30

(2) INFORMATION FOR SEQ ID NO: 34:

(A) LENGTH: 153 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

Met	Val	Thr	Pro	Val	Thr	Trp	Met	Asp	Asn	Pro	Ile	Glu	Val	Tyr	Val	
1				5					10					15		
Asn	Asp	Ser	Val	Trp	Val	Pro	Gly	Pro	Thr	Asp	Asp	Arg	Cys	Pro	Ala	
			20					25					30			
Lys	Pro	Glu	Glu	Glu	Gly	Met	Met	Ile	Asn	Ile	Ser	Ile	Gly	Tyr	His	
		35					40					45				
Tyr	Pro	Pro	Ile	Cys	Leu	Gly	Arg	Ala	Pro	Gly	Cys	Leu	Met	Pro	Ala	
	50					55					60					
Val	Gln	Asn	Trp	Leu	Val	Glu	Val	Pro	Thr	Val	Ser	Pro	Asn	Ser	Arg	
65					70					75					80	
Phe	Thr	Tyr	His	Met	Val	Ser	Gly	Met	Ser	Leu	Arg	Pro	Arg	Val	Asn	
				85					90						95	

Tyr Leu Gln Asp Phe Ser Tyr Gln Arg Ser Leu Lys Phe Arg Pro Lys
100 105 110
Gly Lys Thr Cys Pro Lys Glu Ile Pro Lys Gly Ser Lys Asn Thr Glu
115 120 125
Val Leu Val Trp Glu Glu Cys Val Ala Asn Ser Val Val Ile Leu Gln
130 135 140
Asn Asn Glu Phe Gly Thr Ile Ile Asp
145 150

(2) INFORMATION FOR SEQ ID NO: 35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 603 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "retroviral DNA"

(ix) **FEATURE:**

- (A) NAME/KEY: misc_feature
(B) LOCATION: 1..603
(D) OTHER INFORMATION: /note= "FIGURE 7E"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

ACATTTGAAG	TTCTACAATG	AACCCATCAG	AGATGCAAAG	AAAAGCGCCT	CCACGGAGAT	60
GGTAACACCA	GTCACATGGA	TGGATAATCC	TATAGAAGTA	TATGTTAATG	ATAGTGTATG	120
GGTACCTGGC	CCCACAGATG	ATCGCTGCCC	TGCCAAACCT	GAGGAAGAAG	GGATGATGAT	180
AAATATTTCC	ATTGGGTATC	ATTATCCTCC	TATTTGCCTA	GGGAGAGCAC	CAGGATGTTT	240
AATGCCTGCA	GTCCAAAATT	GGTTGGTAGA	AGTACCTACT	GTCAGTCCTA	ACAGTAGATT	300
CACTTATCAC	ATGGTAAGCG	GGATGTCACT	CAGGCCACGG	GTAAATTATT	TACAAGACTT	360
TTCTTATCAA	AGATCATTAA	AATTTAGACC	TAAAGGGAAA	ACTTGCCCCA	AGGAAATTCC	420
TAAAGGATCA	AAGAATACAG	AAGTTTTAGT	TTGGGAAGAA	TGTGTGGCCA	ATAGTGTGGT	480
GATATTACAA	AACAATGAAT	TCGGAACTAT	TATAGATTAG	GCACCTCGAG	GTCAATTCTA	540
CCACAATTGC	TCAGGACAAA	CTCAGTCGTG	TCCAAGTGCA	CAAGTGAGTC	CAGCTGTCTGA	600
TAG						603

Met	Val	Thr	Pro	Val	Thr	Trp	Met	Asp	Asn	Pro	Ile	Glu	Val	Tyr	Val	1	5	10	15
Asn	Asp	Ser	Val	Trp	Val	Pro	Gly	Pro	Thr	Asp	Asp	Arg	Cys	Pro	Ala	20	25	30	
Lys	Pro	Glu	Glu	Glu	Gly	Met	Met	Ile	Asn	Ile	Ser	Ile	Gly	Tyr	His	35	40	45	
Tyr	Pro	Pro	Ile	Cys	Leu	Gly	Arg	Ala	Pro	Gly	Cys	Leu	Met	Pro	Ala	50	55	60	
Val	Gln	Asn	Trp	Leu	Val	Glu	Val	Pro	Thr	Val	Ser	Pro	Asn	Ser	Arg	65	70	75	80
Phe	Thr	Tyr	His	Met	Val	Ser	Gly	Met	Ser	Leu	Arg	Pro	Arg	Val	Asn	85	90	95	
Tyr	Leu	Gln	Asp	Phe	Ser	Tyr	Gln	Arg	Ser	Leu	Lys	Phe	Arg	Pro	Lys	100	105	110	
Gly	Lys	Thr	Cys	Pro	Lys	Glu	Ile	Pro	Lys	Gly	Ser	Lys	Asn	Thr	Glu	115	120	125	
Val	Leu	Val	Trp	Glu	Glu	Cys	Val	Ala	Asn	Ser	Val	Val	Ile	Leu	Gln	130	135	140	
Asn	Asn	Glu	Phe	Gly	Thr	Ile	Ile	Asp	Glx	Ala	Pro	Arg	Gly	Gln	Phe	145	150	155	160
Tyr	His	Asn	Cys	Ser	Gly	Gln	Thr	Gln	Ser	Cys	Pro	Ser	Ala	Gln	Val	165	170	175	
Ser	Pro	Ala	Val	Asp	Ser	Asp	Leu	Thr	Glu	Ser	Leu	Asp	Lys	His	Lys	180	185	190	
His	Lys	Lys	Leu	Gln	Ser	Phe	Tyr	Leu	Trp	Glu	Trp	Glu	Glu	Lys	Gly	195	200	205	
Ile	Ser	Thr	Pro	Arg	Pro	Lys	Ile	Ile	Ser	Pro	Val	Ser	Gly	Pro	Glu	210	215	220	
His	Pro	Glu	Leu	Trp	Arg	Leu	Thr	Val	Ala	Ser	His	His	Ile	Arg	Ile	225	230	235	240

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

ACATTGGAAG	TTCTACAATG	AACCCATCAG	AGATGCAAAG	AAAAGCGCCT	CCACGGAG	58
ATG GTA ACA CCA GTC ACA TGG ATG GAT AAT CCT ATA GAA GTA TAT GTT	106					
Met Val Thr Pro Val Thr Trp Met Asp Asn Pro Ile Glu Val Tyr Val						
1 5 10 15						
AAT GAT AGT GTA TGG GTA CCT GGC CCC ACA GAT GAT CGC TGC CCT GCC	154					
Asn Asp Ser Val Trp Val Pro Gly Pro Thr Asp Asp Arg Cys Pro Ala						
20 25 30						
AAA CCT GAG GAA GAA GGG ATG ATG ATA AAT ATT TCC ATT GGG TAT CAT	202					
Lys Pro Glu Glu Glu Gly Met Met Ile Asn Ile Ser Ile Gly Tyr His						
35 40 45						
TAT CCT CCT ATT TGC CTA GGG AGA GCA CCA GGA TGT TTA ATG CCT GCA	250					
Tyr Pro Pro Ile Cys Leu Gly Arg Ala Pro Gly Cys Leu Met Pro Ala						
50 55 60						
GTC CAA AAT TGG TTG GTA GAA GTA CCT ACT GTC AGT CCT AAC AGT AGA	298					
Val Gln Asn Trp Leu Val Glu Val Pro Thr Val Ser Pro Asn Ser Arg						
65 70 75 80						
TTC ACT TAT CAC ATG GTA AGC GGG ATG TCA CTC AGG CCA CGG GTA AAT	346					
Phe Thr Tyr His Met Val Ser Gly Met Ser Leu Arg Pro Arg Val Asn						
85 90 95						
TAT TTA CAA GAC TTT TCT TAT CAA AGA TCA TTA AAA TTT AGA CCT AAA	394					
Tyr Leu Gln Asp Phe Ser Tyr Gln Arg Ser Leu Lys Phe Arg Pro Lys						
100 105 110						
GGG AAA ACT TGC CCC AAG GAA ATT CCT AAA GGA TCA AAG AAT ACA GAA	442					
Gly Lys Thr Cys Pro Lys Glu Ile Pro Lys Gly Ser Lys Asn Thr Glu						
115 120 125						
GTT TTA GTT TGG GAA GAA TGT GTG GCC AAT AGT GTG GTG ATA TTA CAA	490					
Val Leu Val Trp Glu Glu Cys Val Ala Asn Ser Val Val Ile Leu Gln						
130 135 140						

538

586

604

(D) TOPOLOGY: linear

Glu Ser Ser Cys Arg
180

(i) SEQUENCE CHARACTERISTICS:

(ii) MOLECULE TYPE: protein

(A) NAME/KEY: Protein
(B) LOCATION:1..182
(D) OTHER INFORMATION:/note= "FIGURE 7H"

[illegible]

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 250 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "retroviral DNA"

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION: 1..250

(D) OTHER INFORMATION: /note= "FIGURE 8A"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

GTAATGACA CCTATGATGC ACTGCCACCC TTTCACGTGT TCACCCTGAA CATCTGCTTT	60
TTACATCTAA GTGATTGTAC CCAATAAATA GTGTGGAGAC CAGAGCTCTG AGCCTTTTGC	120
AGCCTCCATT TTGCAACTGG TCCCCTGGCT CCCACCTTTA TGAACCTTTA ACCTGTCTTT	180
TCTCATTCCT TTGTACCACAT TGGACTTTGG GTACCCTACG GGTGGTGTG AGGCTGTCAC	240
CGCACATTAA	250

(2) INFORMATION FOR SEQ ID NO: 41:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 203 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION: 1..203

(D) OTHER INFORMATION: /note= "FIGURE 8B"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

GTTTAGTTAA TCTATAATCT ATAGAGACAA TGCTTATCAC TGGCTTGCTG TCAATAAATA	60
TGTGGGTAAA TCTCTGTTCA AGACTCTCAG CTTTGAAGCT GTGAGACCCC TGATTTCCCA	120
CTCCACACCT CTATATTTCT GTGTGTGTGT CTTTAATTEC TCCAGTGTG CTGGGTTAGG	180
GTCTCCTCGA CGAGCTGTG TGC	203

(2) INFORMATION FOR SEQ ID NO: 42:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 283 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

004270 00255450

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..283
- (D) OTHER INFORMATION: /note= "FIGURE 8C"

AACTCAGCTG CTGCACAGTG GTCGAGCCTC CAGAGCTCAT GCCATTGCAG TGGTCAGAGC	60
CTGGCCCTCC TCTTCCTGCA TAGAACCTGG ATTCAATCTG TAAGGTGGGA AGTGCAGCAG	120
CAGAGAACTC TGGCCTTGCA GAGAGTCCCT GTTCCCACTT CACTTTCCTT TTCACCAAAT	180
AAAACCCTGC TTTCACTCAT GCATCAAATT GTCTGTGAGC CTACATTTTT GTGGCCATGG	240
GACAAGAACA CCATCTTTAG CTGAGCTAGG GAAAAGTCCT GCA	283

```
(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 245 base pairs
  (B) TYPE: nucleic acid
  (C) STRANDEDNESS: single
  (D) TOPOLOGY: linear

ii) MOLECULE TYPE: other nucleic acid
  (A) DESCRIPTION: /desc = "retroviral DNA"
```

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION: 1..245
- (D) OTHER INFORMATION: /note= "FIGURE 8D"

GATGTGACCA CTGTGACCTA CCTACACTGG AGATGGCTCA CACTTCCTTA CCCTTCCCCT	60
GCTGTACCAA TAAATAACAG CACAGCCTGA CATTCCGGAGC CATTACCGGT CTTTGTGACT	120
TGGTGGTAGT GGTATCCCCT AGGGCCCAGC TGTCTTTTCT TTTATCTCTT TGTCTTGTGT	180
CTTTATTTCT ATGAGTCTCT CGTCTCCGCA CATGGGGAGA AAAACCCATA GACCCTGTAG	240
GGCTG	245

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 181 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "retroviral DNA"

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION:1..181

(D) OTHER INFORMATION:/note= "FIGURE 8E"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

CTCACAAAAA TAATAAAGC TTCTGTTGGC CATTCTTCAG ATCTTCATCT CTTGTGAGGA	60
TCCCCCTGTA CATGTAAAAA TGTAATAAAA CTTGTATCCT TTCTCCTCTT AATCTGTCTT	120
GCATCAATAT CATTCTCTAGA CCCAGTCAGA GATGGGTGGA GGTGAGCCGT ACATTTCCT	180
A	181

(2) INFORMATION FOR SEQ ID NO: 45:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 287 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "RETROVIRAL DNA"

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION:1..287

(D) OTHER INFORMATION:/note= "FIGURE 8F"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

CAGAGAACTC CAGCCAGCTG TGATGGAGCC TCAGGAAGTT CACAGTTGCA GCAGGAAGGA	60
GCCTGGCTGC TCCTCTTCCT GTGTGGAACC TGGGATTAGA ACAGGCTGGC AGGAAGTGCT	120
TTAGCAGGGA CTCTGGCCTA CTCACACTCC TTGTTTCCCC CCTTTCTTCC TTTTCACTCA	180
ATAAAGCCCT GTCTTACTCA CCATTCAAAT TGTCTGTGAG CCTGAATTTT CATGGCTGTG	240
GGACAAAGAA CCCTATTTTT AGCTGAACTA AGGAAAATTC CTGCAAA	287

00427000206460

(i) SEQUENCE CHARACTERISTICS:

- (ix) **FEATURE:**

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

GTGATTGTCT	GCTGACCCTC	TCCCCACAAT	TGTCTTGTGA	CCCTGACACA	TCCCCCTCTT	60
CGAGAAACAC	CCGCGGATGA	TCAATAAATA	TTAAGGGAAC	TCAGAGGCTG	GCAGGATCCT	120
CCATATGCTG	AACGCTGGTT	GCCCCGGGTC	CCCTTCTTTC	TTTCTCTATA	CTTTGTCTCT	180
GTGTCTTTTT	CTTTTCCAAA	TCTCTCGTCC	CACCTTACGA	GAAACACCCA	CAGGTGTGTC	240
CGGGCAACCC	AACGCCACAT	AACA				264